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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/544,143

07/29/2005

Karl Thiele

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER

ROZANSKI, MICHAEL T

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

11/24/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/544,143	<b>Applicant(s)</b> THIELE, KARL	
	<b>Examiner</b> MICHAEL T. ROZANSKI	<b>Art Unit</b> 3768	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4,7-11,14-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7-11,14-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/23/09 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 7-11, 14-18, and 20-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims are directed toward an interpolator that interpolates three dimensional volumes. While figures 6 and 7 appear to show either line or frame interpolation (as US 6,263,093 to Mochizuki demonstrates), one would determine that the amended claims are directed only to the figure 5 embodiment.

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However, if this is the case, the specification does not describe any additional element of the volume interpolator or any type of mathematical calculation that makes the interpolation of volumes distinct from the line or frame interpolator.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-11, 14-18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki (US 6,263,093).

Mochizuki discloses a method and apparatus for 3D ultrasound image processing including a 3D ultrasound probe 10 for acquiring 3D data and display 40 for displaying data. The reception signal (echo data) in the form of two-dimensional data is read out from line memories 22A, 22B and are then input into a line interpolation section 23, which produces one or more of 3D interpolation data. By performing this line interpolation, the number of the ultrasound beams can be increased such that it is possible to improve the resolution of the 3D image (col 9, lines 27-44; see Figure 1). The interpolated 2D data produced in interpolation section 23 is then stored in memories 24A, 24B, after which frame interpolation section 30 interpolates between the adjacent frames. 3D memory 32 is then used to store data output from the frame interpolation section 30 (col 10, lines 35-48).

While line and frame interpolation occur between 2D data (lines/frames), it would have been obvious to the skilled artisan to modify Mochizuki to perform interpolation after volume formation because there is no criticality as to when interpolation can happen during the various stages of creating a three dimensional image and the end result would be same. Furthermore, the interpolator is not structurally distinguishable from the line/frame interpolators. In fact, the interpolators in Mochizuki appear to be identical to Applicant's embodiments shown in figures 6 and 7.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-4, 7-11, 14-18, and 20-23 have been considered but are moot in view of the new ground(s) of rejection. In regard to Mochizuki, line interpolator interpolates between beams within the scanning plane S (col 9, lines 36-40) and frame interpolator 30 interpolates between adjacent frames (col 10, lines 35-37). Since Applicant describes in the specification that interpolation can happen at any stage in the standardized process for creating a three dimensional image [0036], thereby placing no criticality on interpolation occurring between volumes, then it is considered an obvious variation of Mochizuki to alter the position of the interpolation stage.

Furthermore, Applicant does not describe any characteristic of the interpolator that interpolates between volumes that structurally makes it distinct from an interpolator that interpolates between lines/frames (as shown in Applicant's figures 6 and 7). Structurally, Mochizuki teaches an interpolator that is capable of three dimensional

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interpolation (since Applicant does not disclose any unique feature of an interpolator that distinguishes from the typical line/frame interpolators) and a memory capable of storing three dimensional information. Therefore, Applicant must sufficiently show how interpolation between volumes is critical and/or sufficiently claim an element of the interpolator that permits it to perform interpolation between volumes that a line/frame interpolator does not have, as allowed by the specification.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. ROZANSKI whose telephone number is (571)272-1648. The examiner can normally be reached on Monday - Friday, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MR

/Eric F Winakur/  
Primary Examiner, Art Unit 3768